

LISTING OF THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Presented) A method of fracturing a section of a subterranean formation comprising:

(a) forming at least a portion of a well bore that at least penetrates a section of the subterranean formation using a drilling operation;

(b) fracturing a section of the subterranean formation using a stimulation tool interconnected with a drill string located in the portion of the well bore and used in the drilling operation, wherein the fracturing is initiated without removal of the drill string from the portion of the well bore after using the drill string to form the portion of the well bore, the fracturing comprising jetting a fracturing fluid through at least one port in the stimulation tool against the section of the subterranean formation at a pressure sufficient to create at least one cavity in the section of the subterranean formation; and

(c) continuing the drilling operation.

2. (Previously Presented) The method of claim 1 wherein step (c) includes removing the drill string from the well bore.

3. (Previously Presented) The method of claim 1 wherein the drilling operation comprises at least one drilling operation selected from the group consisting of: a rotary drilling operation, a cable-tool drilling operation, a hydrojet drilling operation, and a laser drilling operation.

4-7. (Canceled)

8. (Previously Presented) The method of claim 1 further comprising the step of pumping a second fluid into an annulus, wherein the annulus is formed between a wall of the well bore and a drill string that is disposed in the well bore.

9. (Previously Presented) The method of claim 1 further comprising the step of shutting an annulus, wherein the annulus is formed between a wall of the well bore and a drill string that is disposed in the well bore.

10. (Previously Presented) The method of claim 1 further comprising the step of introducing a cleaning fluid into the well bore.

11. (Previously Presented) The method of claim 1 wherein step (a) includes the use of a drilling fluid.

12. (Canceled)

13. (Previously Presented) The method of claim 1 wherein the fracturing fluid comprises an unweighted drilling fluid.

14. (Previously Presented) The method of claim 1 wherein the fracturing fluid comprises at least one additive selected from the group consisting of: an abrasive, a proppant, an acid, a chemical, and any mixture thereof.

15. (Original) The method of claim 14 wherein the chemical is a relative permeability modifier.

16. (Previously Presented) The method of claim 1 wherein the fracturing fluid comprises at least one fluid selected from the group consisting of: an aqueous-based fluid, a gas, and a foamed fluid.

17. (Previously Presented) The method of claim 1 wherein a fluid jet forming nozzle is connected within the at least one port.

18. (Previously Presented) The method of claim 17 wherein the fracturing fluid is jetted through the fluid jet forming nozzle against the section of the subterranean formation at the pressure sufficient to form the cavity in the section of the subterranean formation.

19. (Previously Presented) The method of claim 18 further comprising the step of pumping a second fluid into an annulus to enhance the fracture of the cavity, wherein the annulus is formed between a wall of the well bore and a drill string that is disposed in the well bore.

20. (Previously Presented) The method of claim 19 wherein the second fluid is pumped into the annulus at a rate sufficient to raise the ambient pressure in the well bore adjacent to the section of the subterranean formation to a level sufficient to enhance the fracture of the cavity in the section.

21. (Original) The method of claim 18 further comprising the step of shutting an annulus, wherein the annulus is formed between a wall of the well bore and a drill string that is disposed in the well bore.

22. (Previously Presented) The method of claim 1 further comprising the step of opening the at least one port prior to the step of jetting the fracturing fluid through the at least one port.

23. (Original) The method of claim 22 wherein the step of opening the at least one port includes a sliding sleeve.

24. (Original) The method of claim 22 wherein the step of opening the at least one port includes a mechanical-activation mechanism or a flow-activation mechanism.

25. (Previously Presented) The method of claim 1 further comprising the steps of:
positioning the stimulation tool in the well bore adjacent to a second section of the subterranean formation to be fractured; and
flowing the fracturing fluid through the at least one port to stimulate the second section of the subterranean formation.

26. (Previously Presented) The method of claim 1 further comprising the step of sealing the zone in the subterranean formation that was fractured.

27. (Previously Presented) The method of claim 26 wherein the step of sealing the zone in the subterranean formation that was fractured includes the use of at least one material selected from the group consisting of: a degradable sealant, a fluid, a solid, and any combination thereof.

28. (Previously Presented) The method of claim 27 wherein the fluid comprises at least one fluid selected from the group consisting of: a cement composition and a gel.

29. (Previously Presented) The method of claim 27 wherein the solid comprises at least one degradable solid selected from the group consisting of: colemanite, a benzoic acid flake, rock salt, a paraffin bead, and calcium carbonate.

30. (Previously Presented) The method of claim 27 wherein the degradable sealant comprises at least one degradable material selected from the group consisting of: a polysaccharide; a chitin; a chitosan; a protein; an aliphatic polyester; a poly(lactide); a poly(glycolide); a poly(ϵ -caprolactone); a poly(hydroxybutyrate); a poly(anhydride); an aliphatic polycarbonate; an ortho ester; a poly(orthoester); a poly(amino acid); a poly(ethylene oxide); and a poly(phosphazene).

31. (Previously Presented) A method of fracturing a subterranean formation comprising:

(a) providing a drill string that comprises a stimulation tool interconnected as a part of the drill string and a drill bit attached at an end of the drill string;

(b) drilling at least a portion of the well bore using the drill string, wherein the well bore penetrates the subterranean formation; and

(c) fracturing multiple sections of the subterranean formation using the stimulation tool as the drill string is removed from the well bore.

32-34. (Canceled)

35. (Previously Presented) The method of claim 31 wherein fracturing multiple sections of the subterranean formation comprises at least one stimulation operation selected from the group consisting of: a fracturing operation and a fracture acidizing operation.

36. (Original) The method of claim 31 wherein the stimulation tool comprises at least one port.

37. (Previously Presented) The method of claim 36 wherein fracturing multiple sections of the subterranean formation comprises the steps of:

positioning the stimulation tool in the well bore adjacent to a first section of the subterranean formation to be fractured; and

flowing a fracturing fluid through the at least one port so as to fracture the first section of the subterranean formation.

38. (Original) The method of claim 37 further comprising the step of pumping a second fluid into an annulus, wherein the annulus is formed between a wall of the well bore and the drill string.

39. (Original) The method of claim 37 further comprising the step of shutting an annulus, wherein the annulus is formed between a wall of the well bore and a drill string that is disposed in the well bore.

40. (Original) The method of claim 37 further comprising the step of introducing a cleaning fluid into the well bore.

41. (Previously Presented) The method of claim 37 wherein step (b) includes the use of a drilling fluid

42. (Canceled)

43. (Previously Presented) The method of claim 37 wherein the fracturing fluid comprises an unweighted drilling fluid.

44. (Previously Presented) The method of claim 37 wherein the fracturing fluid comprises at least one additive selected from the group consisting of: an abrasive, a proppant, an acid, a chemical, and any mixture thereof.

45. (Previously Presented) The method of claim 37 wherein the fracturing fluid comprises at least one fluid selected from the group consisting of: an aqueous-based fluid, a gas, and a foamed fluid.

46. (Original) The method of claim 37 wherein a fluid jet forming nozzle is connected within the at least one port.

47. (Previously Presented) The method of claim 46 wherein the fracturing fluid is jetted through the fluid jet forming nozzle against the section of the subterranean formation at a pressure sufficient to form a cavity in the section of the subterranean formation.

48. (Previously Presented) The method of claim 47 further comprising the step of pumping a second fluid into an annulus to enhance the fracture of the cavity, wherein the annulus is formed between a wall of the well bore and the drill string.

49. (Previously Presented) The method of claim 48 wherein the second fluid is pumped into the annulus at a rate sufficient to raise the ambient pressure in the well bore adjacent to the section in the subterranean formation to a level sufficient enhance the fracture of the cavity.

50. (Original) The method of claim 47 further comprising the step of shutting an annulus, wherein the annulus is formed between a wall of the well bore and a drill string that is disposed in the well bore.

51. (Previously Presented) The method of claim 37 further comprising the step of opening the at least one port prior to flowing the fracturing fluid through the at least one port.

52. (Original) The method of claim 51 wherein the step of opening the at least one port includes a sliding sleeve.

53. (Original) The method of claim 51 wherein the step of opening the at least one port includes a mechanical-activation mechanism or a flow-activation mechanism.

54. (Previously Presented) The method of claim 37 wherein fracturing multiple sections of the subterranean formation further comprises the steps of:

positioning the stimulation tool in the well bore adjacent to a second section of the subterranean formation to be fractured; and

flowing the fracturing fluid through the at least one port to fracture the second section of the subterranean formation.

55. (Previously Presented) The method of claim 31 further comprising the step of sealing the section of the subterranean formation that was fractured.

56. (Previously Presented) The method of claim 55 wherein the step of sealing the section of the subterranean formation that was fractured includes the use of at least one material selected from the group consisting of: a degradable sealant, a fluid, a solid, and any combination thereof.

57. (Previously Presented) A method of fracturing at least one section of a subterranean formation during a drilling operation comprising:

(a) providing a drill string that comprises a stimulation tool interconnected as a part of the drill string and a drill bit attached at an end of the drill string;

(b) drilling at least a portion of the well bore using the drill string, wherein the well bore at least penetrates a section of the subterranean formation;

(c) fracturing a section of the subterranean formation using the stimulation tool, the fracturing comprising jetting a fracturing fluid through at least one fluid jet forming nozzle in the stimulation tool against the section of the subterranean formation at a pressure sufficient to create at least one fracture in the section of the subterranean formation; and

(d) removing the drill string from the well bore.

58. (Previously Presented) The method of claim 57 wherein fracturing the section of the subterranean formation comprises pumping a second fluid into an annulus between the drill

string and the subterranean formation at a pressure sufficient to enlarge the at least one fracture in the section of the subterranean formation.

59. (Previously Presented) The method of claim 57 wherein fracturing the section of the subterranean formation comprises pumping a second fluid into an annulus between the drill string and the subterranean formation at a pressure sufficient to raise the ambient pressure in the well bore adjacent the section of the formation to a level sufficient to enlarge the at least one fracture in the section of the subterranean formation.

60. (Previously Presented) The method of claim 57 wherein fracturing the section of the subterranean formation comprises pumping a second fluid into an annulus between the drill string and the subterranean formation at a pressure sufficient to enlarge the at least one fracture in the section of the subterranean formation, wherein the second fluid is introduced into the annulus while the stimulating fluid is jetted against the section of the subterranean formation.

61. (Previously Presented) The method of claim 1 wherein fracturing the section of the subterranean formation comprising jetting the fluid against the subterranean formation to fracture the section of the subterranean formation by ambient pressure plus stagnation pressure within the at least one cavity.

62. (Previously Presented) The method of claim 61 wherein fracturing the section of the subterranean formation comprises pumping a second fluid into an annulus between the drill string and the subterranean formation at a pressure sufficient to enlarge the fracture in the section of the subterranean formation.

63. (Previously Presented) The method of claim 1 wherein fracturing the section of the subterranean formation comprises pumping a second fluid into an annulus between the drill string and the subterranean formation at a pressure sufficient to enlarge the at least one cavity in the section of the subterranean formation.

64. (Previously Presented) The method of claim 1 wherein fracturing the section of the subterranean formation comprises pumping a second fluid into an annulus between the drill string and the subterranean formation at a pressure sufficient to raise the ambient pressure in the well bore adjacent the section of the formation to a level sufficient to enlarge the at least one cavity in the section of the subterranean formation.

65. (Previously Presented) The method of claim 57 wherein fracturing the section of the subterranean formation comprises pumping a second fluid into an annulus between the drill string and the subterranean formation at a pressure sufficient to enlarge the at least one cavity in the section of the subterranean formation, wherein the second fluid is introduced into the annulus while the fracturing fluid is jetted against the section of the subterranean formation.

66. (Previously Presented) The method of claim 8 wherein the second fluid is pumped into the annulus simultaneously with jetting the fracturing fluid.

67. (Previously Presented) The method of claim 38 wherein the second fluid is pumped into the annulus simultaneously with jetting the fracturing fluid.